

Claims

- [I] A phosphor,
 wherein a first phosphor having a chemical formula of $\text{Sr}_{4-x}\text{Mg}_y\text{Ba}_z\text{Si}_2\text{O}_8:\text{EuX}^{2+}$ ($0 < x < 1, 0 \leq y \leq 1, 0 \leq z \leq 1$) and a second phosphor having a chemical formula of $\text{Sr}_{3-x}\text{SiO}_5:\text{Eu}^{2+}_x$ ($0 < x \leq 1$) are used with mixed in a fixed ratio.
- [2] The phosphor of claim 1, wherein the first phosphor is excited by light having a main peak in a range of 400 to 480nm and has a light emitting main peak in a range of 500 to 600nm.
- [3] The phosphor of claim 1, wherein the second phosphor is excited by light having a main peak in a range of 400 to 480nm and has a light emitting main peak in a range of 550 to 600nm.
- [4] The phosphor of claim 1, wherein a ratio of the first phosphor and the second phosphor is in a range of 9.9 : 0.1 to 5.0 : 5.0.
- [5] The phosphor of claim 1, wherein an average size of a particle of the first phosphor and the second phosphor is 20D or less.
- [6] The phosphor of claim 1, wherein an average size of a particle of the first phosphor and the second phosphor is in a range of 5 to 15D.
- [7] The phosphor of claim 1, wherein excitation light of the phosphor has a main peak in in a range of 400 to 480nm.
- [8] The phosphor of claim 1, wherein light exciting the phosphor and light excited by the phosphor are composed and emit white light.
- [9] A light emitting device comprising:
 a light source;
 a substrate supporting the light source;
 a light transmitting member provided in at least one part around the light source;
 and
 a phosphor which is mixed in the light transmitting member and in which a first phosphor having a chemical formula of $\text{Sr}_{4-x}\text{Mg}_y\text{Ba}_z\text{Si}_2\text{O}_8:\text{EuX}^{2+}$ ($0 < x < 1, 0 \leq y \leq 1, 0 \leq z \leq 1$) and a second phosphor having a chemical formula of $\text{Sr}_{3-x}\text{SiO}_5:\text{Eu}^{2+}_x$ ($0 < x \leq 1$) are mixed in a fixed ratio.
- [10] The light emitting device of claim 9, wherein when the light emitting device is used in a top view type, a ratio of the first phosphor and the second phosphor is in a range of 9.7 : 0.3 to 8.5 : 1.5.
- [II] The light emitting device of claim 10, wherein a content of the phosphor to the light transmitting member is in a range of 10 to 30 wt%.
- [12] The light emitting device of claim 9, wherein when the light emitting device is used in a side view type, a ratio of the first phosphor and the second phosphor is

- in a range of 9.5 : 0.5 to 8.0 : 2.0.
- [13] The light emitting device of claim 12, wherein a content of the phosphor to the light transmitting member is in a range of 5 to 20wt%.
- [14] The light emitting device of claim 9, wherein when the light emitting device is used in white backlight, a mixed ratio of the first phosphor and the second phosphor is in a range of 9.7 : 0.3 to 8.5 : 1.5.
- [15] The light emitting device of claim 14, wherein a content of the phosphor to the light transmitting member is in a range of 20 to 50 wt%.
- [16] The light emitting device of claim 9, wherein when the light emitting device is used in bluish white color backlight, the first phosphor and the second phosphor are mixed in a ratio of 9.7 : 0.3 to 8.5 : 1.5.
- [17] The light emitting device of claim 16, wherein a content of the phosphor to the light transmitting member is in a range of 10 to 40 wt%.
- [18] The light emitting device of claim 9, wherein the light transmitting member is molded as a light transmitting resin material.
- [19] The light emitting device of claim 18, wherein the light transmitting resin member is a silicone resin or an epoxy resin.
- [20] The light emitting device of claim 9, wherein white color light is emitted after passing through the phosphor layer.
- [21] The light emitting device of claim 9, wherein the light transmitting member is entirely provided at the outside of the light source.
- [22] The light emitting device of claim 9, wherein the light transmitting member is partially provided at the outside of the light source.
- [23] A light emitting device comprising:
a light source emitting excitation light;
a light transmitting member provided in at least one part around the light source;
and
a phosphor which is received in the light transmitting member and in which a first phosphor having a light emitting main peak in a range of 500 to 600nm to a blue color light source and a second phosphor having a light emitting main peak in a range of 550 to 600nm to the blue color light source are mixed in a ratio of 9.9 : 0.1 to 5.0 : 5.0.
- [24] The light emitting device of claim 23, wherein light emitted from the light source and light excited from the phosphor are together emitted.
- [25] A surface mounting-type light emitting device comprising:
a light source;
a support supporting the light source;
a light transmitting member provided in at least one part around the light source;

and

a phosphor which is mixed in the light transmitting member and in which a first phosphor having a chemical formula of $\text{Sr}_{4-x}\text{Mg}_y\text{Ba}_z\text{Si}_2\text{O}_8:\text{EuX}^{2+}$ ($0 < x < 1, 0 \leq y \leq 1, 0 \leq z \leq 1$) and a second phosphor having a chemical formula of $\text{Sr}_{3-x}\text{SiO}_5:\text{Eu}^{2+}$ ($0 < x \leq 1$) are mixed in a fixed ratio.

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A lamp-type light emitting device comprising:

a light source;

a support supporting the light source;

a light transmitting member provided in at least one part around the light source;

and

a phosphor which is mixed in the light transmitting member and in which a first phosphor having a chemical formula of $\text{Sr}_{4-x}\text{Mg}_y\text{Ba}_z\text{Si}_2\text{O}_8:\text{EuX}^{2+}$ ($0 < x < 1, 0 \leq y \leq 1, 0 \leq z \leq 1$) and a second phosphor having a chemical formula of $\text{Sr}_{3-x}\text{SiO}_5:\text{Eu}^{2+}$ ($0 < x \leq 1$) are mixed in a fixed ratio.